

AMENDMENTS TO THE CLAIMS

1-4. (Canceled)

5. (Currently amended) The method according to ~~claim 4~~ claim 118, wherein the logical rules comprise a joining rule, and wherein the query plan comprises selecting a key responsively to the joining rule, and joining the data from two or more of the data sources using the key, and

wherein selecting the key comprises analyzing the data so as to select one or more fields in the two or more of the data sources for use as the key so as to provide a desired statistical probability that the data will be joined correctly.

6-7. (Canceled)

8. (Currently amended) The method according to ~~claim 4~~ claim 118, wherein the logical rules comprise an access rule, and wherein the query plan comprises selecting at least one of the data sources for use in generating the response responsively to the access rule as applied to the user who submitted the query.

9-27. (Canceled)

28. (Original) A method for data access, comprising:

defining an ontology for application to a set of diverse data sources comprising data;

defining data access rights with respect to the ontology; and

controlling user access to the data responsively to the ontology of the data and the access rights applicable thereto.

29. (Original) The method according to claim 28, wherein defining the ontology comprises specifying a user ontology, and wherein defining the data access rights comprises assigning a classification to a user according to the user ontology, and wherein controlling the user access comprises comparing the classification to the access rights applicable to the data.

30. (Original) The method according to claim 29, wherein the diverse data sources are distributed among a set of autonomous organizations comprising at least first and second organizations, and wherein assigning the classification comprises classifying the user according to an organizational affiliation of the user so as to control access by users in the first organization to the data sources held by the second organization.

31. (Currently amended) The method according to ~~any of claims 28-30~~ claim 28, wherein controlling the user access comprises receiving a query from a user to access the data in the data sources, determining a query plan for responding to the query by selecting one or more of the data sources responsively to the ontology such that the access rights permit the user to access the data in the one or more of the data sources, and generating a response to the query in accordance with the query plan.

32-33. (Canceled)

34. (Currently amended) The method according to ~~claim 32 or 33~~ claim 119, wherein the data ~~resources~~ sources are distributed among a set of autonomous organizations comprising at least first and second organizations, wherein the user submitting the query belongs to the first organization, and wherein determining the query plan comprises selecting, responsively to the performance characteristics, one of the data resources of the second organization for use in responding to the query.

35. (Original) A method for exchange of information, comprising:

establishing a virtual private network among a plurality of nodes, comprising at least first and second nodes, which are configured to communicate with one another over an underlying public physical network;

defining a semantic communication model for conveying data packets among the nodes in the virtual private network, responsively to an ontology of the information;

sending a data packet over the virtual private network from the first node to the second node;
and

filtering the data packet against the semantic communication model at the second node, so as to verify that the data packet is legitimate.

36. (Original) The method according to claim 35, wherein defining the semantic communication model comprises defining a closed set of semantic messages that may be carried by data packets in the virtual private network.

37. (Original) The method according to claim 35, wherein the nodes are distributed among a set of autonomous organizations.

38-66. (Canceled)

67. (Original) Apparatus for data access, comprising a hub processor, which is adapted to receive a definition of an ontology for application to a set of diverse data sources comprising data and a definition of data access rights with respect to the ontology, and which is adapted to control user access to the data responsively to the ontology of the data and the access rights applicable thereto.

68. (Canceled)

69. (Currently amended) The apparatus according to ~~claim 68~~ claim 67, wherein the diverse data sources are distributed among a set of autonomous organizations comprising at least first and second organizations, and wherein the hub processor is adapted to classify ~~the~~ a user according to an organizational affiliation of the user so as to control access by users in the first organization to the data sources held by the second organization.

70. (Currently amended) The apparatus according to ~~any of claims 67-69~~ claim 67, wherein the hub processor is adapted to receive a query from a user to access the data in the data sources, to determine a query plan for responding to the query by selecting one or more of the data sources responsively to the ontology such that the access rights permit the user to access the data in the one or more of the data sources, and to generate a response to the query in accordance with the query plan.

71-73. (Canceled)

74. (Original) Apparatus for exchange of information, comprising a plurality of computing nodes, which comprise at least first and second nodes, and which are linked to communicate over a virtual private network running over an underlying public physical network, and which are

configured to exchange data packets over the virtual private network in accordance with a semantic communication model, which is defined responsively to an ontology of the information, wherein at least the second node is adapted, upon receiving a data packet over the virtual private network from the first node, to filter the data packet against the semantic communication model so as to verify that the data packet is legitimate.

75-105. (Canceled)

106. (Original) A computer software product, comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a computer, cause the computer to receive a definition of an ontology for application to a set of diverse data sources comprising data and a definition of data access rights with respect to the ontology, and to control user access to the data responsively to the ontology of the data and the access rights applicable thereto.

107. (Canceled)

108. (Currently amended) The product according to ~~claim 107~~ claim 106, wherein the diverse data sources are distributed among a set of autonomous organizations comprising at least first and second organizations, and wherein the instructions cause the computer to classify ~~the~~ a user according to an organizational affiliation of the user so as to control access by users in the first organization to the data sources held by the second organization.

109-112. (Canceled)

113. (Original) A computer software product, comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a group of computing nodes that includes at least first and second nodes, linked to communicate over a physical public network, cause the computing nodes to communicate in a virtual private network by exchanging data packets over the public physical network in accordance with a semantic communication model, which is defined responsively to an ontology of the information, wherein the instructions cause at least the second node, upon receiving a data packet over the virtual private network from the first node, to filter the data packet against the semantic communication model so as to verify that the data packet is legitimate.

114-117. (Canceled)

118. (New) The method according to claim 28, and comprising:

associating with the ontology one or more logical rules applicable to semantics of the data in the data sources;

receiving a query from a user regarding the data;

determining a query plan for responding to the query by selecting one or more of the data sources responsively to the ontology and by identifying an operation to be applied to the data responsively to the applicable logical rules; and

generating a response to the query in accordance with the query plan.

119. (New) The method according to claim 28, and comprising:

collecting information regarding a topology and performance characteristics of the data sources;

receiving a query from a user regarding the data;

determining a query plan responsively to the query and to the information regarding the topology and performance characteristics; and

generating a response to the query in accordance with the query plan.

120. (New) The apparatus according to claim 67, wherein the hub processor is adapted to associate with the ontology one or more logical rules applicable to the semantics of the data in the data sources, and is further adapted, upon receiving a query from a user regarding the data, to determine a query plan for responding to the query by selecting one or more of the data sources responsively to the ontology and by identifying an operation to be applied to the data responsively to the applicable logical rules, and to generate a response to the query in accordance with the query plan.

121. (New) The apparatus according to claim 67, wherein the hub processor is adapted to collect information regarding a topology and performance characteristics of the data sources, and is further adapted, upon receiving a query from a user regarding the data, to determine a query plan

responsively to the query and to the information regarding the topology and performance characteristics, and to generate a response to the query in accordance with the query plan.

122. (New) The product according to claim 106, wherein the instructions cause the computer to associate with the ontology one or more logical rules applicable to the semantics of the data in the data sources, and further cause the computer, upon receiving a query from a user regarding the data, to determine a query plan for responding to the query by selecting one or more of the data sources responsively to the ontology and by identifying an operation to be applied to the data responsively to the applicable logical rules, and to generate a response to the query in accordance with the query plan.

123. (New) The product according to claim 106, wherein the instructions cause the computer to collect information regarding a topology and performance characteristics of the data sources, and further cause the computer, upon receiving a query from a user regarding the data, to determine a query plan responsively to the query and to the information regarding the topology and performance characteristics, and to generate a response to the query in accordance with the query plan.